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Illinois Sustainable Technology Center
University of Illinois

ISTC Illinois Sustainable Technology Center

Formerly Waste Management Research Center (WMRC)

Construction and Demolition Waste Reduction

Summary

Project:
Multifamily townhome project in Normal, IL.

Work Site:
New mixed density residential community.

Construction:
Panelized walls, roof trusses, and shaft wall between units.

Cost Savings:
Cost neutral. Project goal was to not exceed typical waste hauling fees. May have saved $325 for one less dumpster than originally estimated.

Total Waste Reduction 27%
6.62 tons of wood and cardboard were recycled. 17.82 tons were hauled to landfill.

Completion:
May 2008

This case study is one in a series developed by the Illinois Sustainable Technology Center at the University of Illinois to highlight techniques for saving money and protecting the environment through reuse and recycling of construction and demolition debris.

Project Description: Four-Unit Townhome Building, Normal, IL

The McLean County pilot project was a four-unit townhome of approximately 6,000 square feet (1,500 square feet per unit) in Normal, IL undertaken in conjunction with Brady Homes. The project began in mid-November 2007 and finished at the end of May 2008. The project generated 24.44 tons of waste that was hauled off the site in 10 loads. The waste equaled 8.15 pounds per square foot. Two 20 CY boxes of wood (6 tons) and one 20 CY box of cardboard (0.62 tons) were recycled. The wall sections were panelized, which resulted in reduced wood waste. Recycled material resulted in 27% of the project waste being diverted from the landfill. Project signage was sponsored by a grant from State Farm Insurance. Dumpster signage was ordered from WasteCap Wisconsin.

Project Sign Sponsored By State Farm

Cardboard Only Recycling Bin

Spotlight: Source Separation

Roll-off boxes (dumpster) were not placed on-site until the framing stage in early January. Prior to this time, the foundation and site contractors recycled all concrete overage and removed their own waste materials, which were minimal. When the framing began, two 20 cubic yard (CY) boxes were placed on site: one for **wood waste only** and one for non-recyclable waste. In February,

Challenges

Illegal dumping occurred on several occasions and contamination had to be removed from the recycle boxes.

Creating a culture of recycling takes time. Don't expect total compliance from the start of the project.

Space for source separation would be very difficult on a typical single-family home site.

coinciding with the application of vinyl siding that was delivered to the site in cardboard cartons, a 20 CY roll-off box for "**cardboard only**" was also placed on-site. Trade contractors were consulted as to the preferred location of the wood, cardboard, and waste boxes. In spite of overall cooperation at source separation from trade partners, contamination was a constant concern. Vendors, such as the gypsum supplier, put dunnage in the "cardboard only" box on several occasions. This lack of compliance did not seem malicious; rather delivery personnel and trade contractors were just not used to working on residential projects with recycling requirements The boxes were monitored and photographed by ISTC (formerly WMRC) grant personnel at least twice a week.

Keys to Success: Source Separation

- Discuss waste handling requirements with crew and subcontractors before beginning a project and re-emphasize their importance at weekly meetings as work progresses.
- Seek trade contractor input in the location of waste and recycling boxes. As the space allows, waste and recycling bins were placed close to each other and as close to the work as possible.
- Clearly designate and monitor the recycling bins to prevent contamination.
- Post lists of what is and is not recyclable on the containers.
- Post recycling requirements at various locations on the site.
- Boxes were hauled only when full.

Wood Only Recycling Bin

Project Team

Building Owner and Builder: Brady Homes, Bloomington, IL. (309) 663-5301.

Hauling Contractor: Contractors Disposal, Bloomington, IL. (309) 451-3867.

Recycling Services:
Midwest Fiber, Bloomington, IL (309) 452-0064

Twin City Wood Recycling, Bloomington, IL. (309) 827-9663

Finished Townhomes

Research Team: Illinois State University, Department of Technology, Normal, IL 61790-5100; Contact: Richard Boser, Principal Investigator, (309) 438-3661.

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